

What is claimed is:

1. An apparatus for performing a predetermined process on a group of substrates, the processing procedure of said group of substrates being determined for each substrate unit to be processed including at least one substrate, said apparatus comprising

5 a plurality of cells each including:

at least one processing unit;

at least one substrate inlet;

a plurality of substrate outlets;

10 a transport element for transporting a substrate between said at least one processing unit, said at least one substrate inlet and said plurality of substrate outlets; and

a controller for controlling said at least one processing unit and said transport element,

wherein said controller in each of said plurality of cells controls said transport

15 element so that a substrate received into each cell by way of said at least one substrate inlet is transferred outwardly of each cell by way of one of said plurality of substrate outlets which is determined by transport setting established for each cell and for a substrate unit to which said substrate belongs, and so that substrates determined to be transferred outwardly by way of said one of said plurality of substrate outlets by said

20 transport setting are transferred outwardly in the order in which said substrates are made ready for outward transfer.

2. The apparatus according to claim 1, further comprising

a plurality of substrate rest parts provided between adjacent two of said

25 plurality of cells,

one of said plurality of substrate rest parts serving as said at least one substrate inlet of one of said two adjacent cells and as one of said plurality of substrate outlets of the other of said two adjacent cells,

the remainder of said plurality of substrate rest parts serving as one of said  
5 plurality of substrate outlets of said one of said two adjacent cells and as said at least one substrate inlet of said other of said two adjacent cells,

wherein said controller in each of said plurality of cells determines the order in which substrates are to be transferred outwardly by way of said one of said substrate outlets of each cell by referencing a substrate placement state signal and said transport  
10 setting, said substrate placement state signal being applied from a predetermined sensor and indicating whether or not a substrate is placed on a corresponding one of said substrate rest parts.

3. The apparatus according to claim 2, wherein  
15 said predetermined sensor is provided in said corresponding one of said substrate rest parts.

4. The apparatus according to claim 2, wherein  
said predetermined sensor is provided in said transport element.

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5. An apparatus for performing a predetermined process on a group of substrates, the processing procedure of said group of substrates being determined for each substrate unit to be processed including at least one substrate, said apparatus comprising  
a plurality of cells each including:

25 at least one processing unit;

a transport element for transporting a substrate; and

a controller for controlling said at least one processing unit and said transport element,

wherein said controller in each of said plurality of cells controls said at least  
5 one processing unit and said transport element so that a first substrate belonging to a first  
substrate unit is received into each cell before the completion of an intra-cell process of a  
second substrate preceding said first substrate and belonging to a second substrate unit  
different in transport setting from said first substrate unit, and so that said first and second  
substrates are processed and transported in accordance with the transport setting for the  
10 first and second substrate units, respectively.

6. The apparatus according to claim 5, wherein:

each of said plurality of cells further includes at least one substrate inlet, and a  
plurality of substrate outlets; and

15 said controller in each of said plurality of cells controls said transport element  
so that a substrate received into each cell by way of said at least one substrate inlet is  
transferred outwardly of each cell by way of one of said plurality of substrate outlets  
which is determined by transport setting established for each cell and for a substrate unit  
to which said substrate belongs, and so that substrates determined to be transferred  
20 outwardly by way of said one of said plurality of substrate outlets by said transport setting  
are transferred outwardly in the order in which said substrates are made ready for outward  
transfer when a plurality of substrates belonging to said substrate units different in said  
transport setting are present in each cell at the same time.

25 7. The apparatus according to claim 1, wherein

said at least one processing unit in at least one of said plurality of cells includes at least one of a processing unit for processing a substrate using a chemical solution and a thermal processing unit for heating or cooling a substrate.

5           8. A method of transporting substrates in a substrate processing apparatus, said substrate processing apparatus processing and transporting substrates belonging to a plurality of substrate units to be processed, each of said substrate units including at least one substrate, said substrate processing apparatus including a plurality of cells, each of said plurality of cells including at least one processing unit, at least one substrate inlet, a  
10   plurality of substrate outlets, and a transport element for transporting a substrate between said at least one processing unit, said at least one substrate inlet and said plurality of substrate outlets, said method comprising the steps of:

(a) receiving a substrate into each cell by way of said at least one substrate inlet;  
and

15           (b) transferring said substrate outwardly of each cell by way of any of said plurality of substrate outlets,

wherein, in said step (b), said substrate is transferred outwardly by way of one of said plurality of substrate outlets determined by transport setting established for each cell and for one of said substrate units to which said substrate belongs, and

20           wherein, in said step (b), substrates determined to be transferred outwardly by way of said one of said plurality of substrate outlets by said transport setting are transferred outwardly in the order in which said substrates are made ready for outward transfer.

25           9. The method according to claim 8, wherein:

said substrate processing apparatus further includes a plurality of substrate rest parts between adjacent two of said plurality of cells,

one of said plurality of substrate rest parts serving as said at least one substrate inlet of one of said two adjacent cells and as one of said plurality of substrate outlets of  
5 the other of said two adjacent cells,

the remainder of said plurality of substrate rest parts serving as one of said plurality of substrate outlets of said one of said two adjacent cells and as said at least one substrate inlet of said other of said two adjacent cells; and

the order in which substrates are to be transferred outwardly by way of said one  
10 of said substrate outlets of each cell is determined by referencing a substrate placement state signal and said transport setting, said substrate placement state signal indicating whether or not a substrate is placed on a corresponding one of said substrate rest parts.

10. A method of processing substrates in a substrate processing apparatus, said  
15 substrate processing apparatus processing and transporting substrates belonging to a plurality of substrate units to be processed, each of said substrate units including at least one substrate, said substrate processing apparatus including a plurality of cells, each of said plurality of cells including at least one processing unit, and a transport element for transporting a substrate, said method comprising the steps of:

20 (a) receiving a substrate into each cell; and

(b) transporting said substrate in each cell by means of said transport element, wherein, in said step (b), a substrate is transported in accordance with transport setting established for each cell and for each substrate unit, and

wherein, in said step (a), a first substrate belonging to a first substrate unit is  
25 received into each cell before the completion of an intra-cell process of a second substrate

preceding said first substrate and belonging to a second substrate unit different in transport setting from said first substrate unit.

11. The method according to claim 10, wherein:

5 each of said plurality of cells further includes at least one substrate inlet, and a plurality of substrate outlets;

a substrate received into each cell by way of said at least one substrate inlet is transferred outwardly of each cell by way of one of said plurality of substrate outlets which is determined by transport setting established for each cell and for one of said  
10 substrate units to which said substrate belongs; and

substrates determined to be transferred outwardly by way of said one of said plurality of substrate outlets by said transport setting are transferred outwardly in the order in which said substrates are made ready for outward transfer when a plurality of substrates belonging to said substrate units different in said transport setting are present in  
15 each cell at the same time.

12. The apparatus according to claim 1, wherein:

said at least one substrate inlet includes a plurality of substrate inlets;

said at least one processing unit includes a plurality of processing units; and

20 said controller in each of said plurality of cells allows said transport element to outwardly transfer a substrate made ready for outward transfer earlier when substrates belonging to a plurality of substrate units different in transport setting are received into each cell by way of a common one of said plurality of substrate inlets and are subjected to an intra-cell process in a common one of said plurality of processing units.

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13. The apparatus according to claim 5, wherein:

each of said plurality of cells further includes a plurality of substrate inlets and a plurality of substrate outlets;

said at least one processing unit includes a plurality of processing units;

5        said controller in each of said plurality of cells controls said transport element so that a substrate received into each cell by way of one of said plurality of substrate inlets is transferred outwardly of each cell by way of one of said plurality of substrate outlets which is determined by said transport setting; and

10        said controller in each of said plurality of cells allows said transport element to receive said first substrate into each cell before the completion of said intra-cell process of said second substrate when substrates belonging to a plurality of substrate units different in transport setting are received into each cell by way of a common one of said plurality of substrate inlets and are subjected to said intra-cell process in a common one of said plurality of processing units.

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14. The method according to claim 8, wherein:

said at least one substrate inlet includes a plurality of substrate inlets;

said at least one processing unit includes a plurality of processing units; and

20        a substrate made ready for outward transfer earlier is allowed to be transferred outwardly of each cell when substrates belonging to a plurality of substrate units different in transport setting are received into each cell by way of a common one of said plurality of substrate inlets and are subjected to an intra-cell process in a common one of said plurality of processing units.

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15. The method according to claim 10, wherein:

each of said plurality of cells in said substrate processing apparatus further includes a plurality of substrate inlets and a plurality of substrate outlets;

said at least one processing unit in each of said plurality of cells includes a plurality of processing units;

5           a substrate received into each cell by way of one of said plurality of substrate inlets is transferred outwardly of each cell by way of one of said plurality of substrate outlets which is determined by said transport setting; and

          said first substrate is allowed to be received into each cell before the completion of said intra-cell process of said second substrate when substrates belonging to a plurality  
10 of substrate units different in transport setting are received into each cell by way of a common one of said plurality of substrate inlets and are subjected to said intra-cell process in a common one of said plurality of processing units.